

In re Application of LEVIDOW et al.
Application No. 10/040,222

Amendments to the Specification

Replace the paragraph beginning at page 6, line 18 with:

Computer 100 may also have input devices such as a keyboard, mouse, pen, voice input device, touch input device, etc. Output devices such as a display ~~118~~ 446, speakers, a printer, etc. may also be included. All these devices are well known in the art and need not be discussed at length here.

Replace the paragraph beginning at page 8, line 20 with:

Referring to FIG.5, another example of a UI may be used in an embodiment of the invention is shown. The UI, generally labeled 500, includes a first pull down menu 502 and a first explanation field 503, a second pull down menu 504 and a second explanation field 505, and a text input area 506. The UI 500 further includes an OK button 508, a cancel button 510, and a help button 512. The first pull down menu 502 allows the user to choose an action to perform, such as shutting down the computer. Other possible actions listed in the pull down menu 502 include logging off a network, or restarting the computer. The first explanation field 503 gives the user a textual explanation of the menu item. The second pull down menu 504 allows the user choose a reason for performing the action chosen in the first pull down menu 502. For example, if the action chosen in the first pull down menu 502 is "shut down," then the choice given to the user in the second pull down menu 504 may include, for example, hardware maintenance, operating system configuration, software installation system failure, power failure and system hung. The second explanation field 505 gives the user a textual explanation of the chosen menu item. The text input area ~~506~~ 504 allows the user to enter additional comments such as "power failure was building-wide."

Replace the paragraph beginning at page 10, line 1 with:

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There are a variety of ways in which a user-mode snapshot may be implemented. Referring to FIG. 13, one example of a user-mode snapshot will now be illustrated and described. In this example, a computer 1300 has just experienced an unexpected shutdown, as indicated by the shutdown reason entered by a user 1302. Prior to shutting down, the computer 1300 takes a snapshot 1304 of its user-mode processes and stores it on its internal hard disk 1306. The snapshot 1304 ~~1308~~ is an extensible mark-up language (XML) file that includes per process parameters 1310 for each user-mode process, pagefile parameters 1312, and system parameters 1314. The per process parameters 1310 describe those conditions that are relevant to a single process, and may include one or more of the following pieces of information:

- User time: The amount of time in seconds that the process kept the processor in user mode.
- Kernel time: The amount of time in seconds that the process kept the processor in kernel mode.
- Working set: The amount of memory the process was using at the time the snapshot was taken.
- Total page faults: The number of times the processor was forced to go to virtual memory on the computer's hard drive.
- Bytes committed: The number of bytes of memory the process had reserved at the time of the snapshot, regardless of whether all of it was actually used.
- Process priority: The priority of the process vis-à-vis the rest of the processes.
- Number of handles: The number of handles, or pointers to blocks of memory being used by the process.
- Number of threads: The number of threads that were defined within the process at the time the snapshot was taken.

Replace the paragraph beginning at page 15, line 14 with:

Referring to FIGS. 9 and 10, another example of steps that may be taken to collect shutdown information for a computer running the WINDOWS XP brand operating

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system will now be described. It is assumed that this procedure occurs during a reboot operation following an unexpected shutdown of the operating system. It is understood that these steps are applicable to non-WINDOWS XP implementations as well, even though described in the context of WINDOWS XP. At step 901 (FIG. 9), the user logs in. At step 902, the collector module 610 (FIG. 6) checks the system database 640 to determine whether shutdown reason collection has been enabled. If it has not been enabled, then the flow proceeds to step 911, at which a conventional reboot ensues. If shutdown reason collection has been enabled, then the collector module 610 retrieves the list 612 of shutdown reasons, and retrieves any custom-defined shutdown reasons from the system database 640, and displays the reasons on a UI 1000 (FIG. 10) at step 903. At steps 904, 906 and 907 ~~905—907~~, the system manager module 610 waits for the user to either select a predefined shutdown reason from the pull-down menu, or enter his own reason in the comments box. Optionally, the user may be sent back to step 901 after a two minute time-out. After the user selects or enters a reason, the collector module 610 enables the OK button (step 908). After the user clicks OK (step 909), then the collector module 610 calls the log file helper function directly and stores the entered reason in the repository 620 (step 910). At step 911, the WINDOWS XP operating system resumes its normal booting operation.

Replace the paragraph beginning at page 16, line 11 with:

Referring to FIG. 11, yet another example of an architecture that may be used in an embodiment of the invention is shown. The architecture comprises a first computer system 1100 that includes a shutdown reason collector module 1110 having a list 1112 of predefined shutdown reasons, a user interface 1130, ~~a snapshot module 1172~~, and an optional system database 1140. The architecture further comprises a computer network 1150, and a second computer system 1160 having a memory 1162, and a snapshot module 1172. The memory 1162 further includes a shutdown reason repository 1170, which may be a log file. The first and second computer systems may communicate with one another over the network 1150. The system database 1140 may include predefined shutdown reasons in addition to those in the list 1112 of the collector module. A user at the first

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computer system 1100 may remotely shut down a program on the second computer system 1160 via the user interface 1130. The user interface 1130 also gives the user an opportunity to enter a reason for the shutdown. The collector module 1110 checks the list 1112, as well as the system database 1140 to ensure that the entered reason is recognizable. If, based on the entered reason, the collector module 1110 determines the shutdown to be unplanned, then the collector module 1110 invokes the snapshot module 1172, which takes a snapshot of the state of the user-mode processes and saves the snapshot on the non-volatile memory of the computer system 1160. The collector module 1110 then stores the shutdown reason remotely in the log file 1112. Storing the shutdown reason on the second computer system 1160 is advantageous, since it is a program on the second computer system that is being shutdown, even though the action was initiated from the first computer system.